

5 510(K) Summary

		510 (K) Summary					
5.1	Submitter/Owner	Oricare, Inc. FDA #3009129579 1900 AM Drive Quakertown, Pennsylvani +1-215-538-2470 Phone	FDA #3009129579 1900 AM Drive Quakertown, Pennsylvania 18951				
5.2	Key Contacts	Kurtis Montegna Quality Assurance & Regulatory Affairs Manager kmontegna@Oricaremed.com David Jamlson Executive VP diamison@Oricaremed.com					
5.3	Date Prepared	06/13/2013	06/13/2013				
5.4	510(K) Submission Type	This is a traditional 510(K	This is a traditional 510(K)				
5.5	Prior Submissions	There have been no prior	There have been no prior submissions to FDA about this device.				
5.6	Trade Name	A9800 Anesthesia Works	A9800 Anesthesia Workstation				
5.7	Common Name	Anesthesia Workstation	Anesthesia Workstation				
5.8	Classification Name	Class II BSZ Panel 73: Anesthesiology Subpart F: Therapeutic Devices CFR 868.5160 Gas machine for anesthesia or analgesia					
	-	K123125	GE Datex-Ohmeda Avance	BSZ			
5.9	Predicate Devices	K123211	Mindray A5 Anesthesia Delivery System	BSZ			
		K042607	Draeger Apollo US	BSZ			

The A9800 Anesthesia Workstation is substantially equivalent to the legally marketed (predicate) GE-Datex-Ohmeda Avance K123125, the Mindray A5 K123211, and the Draeger Appollo K042607.

Oricare, Inc.

FDA Device Registration Number 3009129579 - K131790

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5.10 A9800 - Description of the device per 21 CFR 807.92(a) (4)

The A9800 Anesthesia Workstation provides accurate, pneumatically driven and electronically controlled ventilation. The A9800 includes modes that provide patient-appropriate defaults and ranges. The A9800 was rigorously tested to harmonized standards, which included a full human factors study with physicians.

Like the predicate device (K123125) A9800 provides complete anesthesia ventilation capabilities that include traditional and "intensive care type" ventilation modes. Low-flow anesthesia delivery creates savings by lower facility gas usage. The integrated electronic flow meter provides accurate monitoring and intuitive operation. The A9800 bellows contains breathing gasses to be delivered to the patient as does the predicate device. Likewise, for patient safety both the predicate and the A9800 maintain positive pressure in the breathing system so any leakage that occurs is outward. PEEP (Positive End Expiratory Pressure) in A9800 is electronically regulated for patient safety and is substantially equivalent to the predicate device. Both the A9800 and the predicate device offer an ACGO (alternate common gas outlet) to provide fresh gas to non-rebreathing adapters.

The A9800 and the predicate device (K123125) include the following ventilation modes: Volume Mode, Pressure Control Mode, Pressure Support Mode with Apnea Backup, Synchronized Intermittent Mandatory Ventilation Mode (SIMV), and Pressure Controlled Ventilation with Volume Guarantee (PCV-VG). The predicate offers SIMV-PCV-VG, which is not offered on the A9800. The A9800 method of control, of the maximum applied breathing pressure, during manual ventilation (by using a single turn APL valve along with a manual breathing bag) is equivalent to the predicate device.

Both the predicate device (K123125) and the A9800 have an accessory gas analyzer that can monitor FiO₂ and patient respiratory gas for CO₂, N₂O, and five types of anesthetic agents. A9800 and the predicate also have an Anesthetic Gas Scavenging System (AGSS) for the safe and effective removal of waste gas.

Both the predicate device (K123125) and the A9800 utilize a large 15 inch touch screen monitor with a navigator wheel that provides a simple intuitive interface for user control. The screen can be tilted upward and downward according to the doctor's needs and position. The parameter areas on the main screen are shown in different colors for ease of identification. The waveforms and alarm records are clearly shown for easy review by the clinician.

Like the predicate device (K123125) the A9800 displays patient data with waveforms and spirometry loops. A reference loop can be stored to best understand changes in patient response to therapy. Both the A9800 and its predicate device (K123125) contain electronic flow meters for O₂, Air, and N₂O, which are designed especially for low flow applications. Electronic fresh gas flow displays are used in addition to traditional mechanical flow controllers for enhanced patient safety. Data communications export is supported to connect to the Hospital IT systems and support electronic medical records (EMR).



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Item of comparison	GE Avance Predicate	Mindra Predic			Draeger Apollo Predicate	Oricare : Current Sul		Substantial Equivalence
The GE-Datex Avance CS ² Anesthesia System is intended to provide general inhalation anesthesia and ventilatory support to a wide range of patients (neonatal, pediatric, adult). The device is intended for volume or pressure control ventilation.		a patient, continuously or intermittently, a general inhalation anesthetic, and to maintain a patient's ventilation. The A5/A3 is intended for use by licensed clinicians, for patients requiring anesthesia within a health care facility, and can be		The Apollo is indicated as a continuous flow anesthesia system. The Apollo may be used for manually assisted or automatic ventilation, delivery of gases and anesthetic vapor, and monitoring of oxygen and CO2 concentration, breathing pressure, respiratory volume, and anesthetic agent concentration and identification.		general inhalation anesthesia and ventilatory support for adolescents to adults in an operating room environment. The device is		No Difference SE
Indications for Use The GE-Datex Avance CS ² Anesthesia System is intended to provide general inhalation anesthesia and ventilatory support to a wide range of patients (neonatal pediatric, adult). The device is intended for volume or pressure control ventilation.		The A5/A3 Anest is a device used to a patient, continu intermittently, a g inhalation anesth maintain a patien The A5/A3 is intellicensed clinician requiring anesthe health care facility.	to administer to cousty or eneral etic, and to t's ventilation. Indeed for use by s, for patients esia within a y, and can be	continuous	pollo is indicated as a nuous flow anesthesia m. The Apollo may be us anually assisted or natic ventilation, delivery and anesthetic vapor, a coring of oxygen coconcentration, ning pressure, respirator ne, and anesthetic agent entration and fication.	of general in anesthesia and support for add adults in an open environment. I	provides halation d ventilatory plescents to erating room The device is volume or	No Difference SE
5.12 Prim	ary Predicate Devic	e Comparison	Table – Ph	ysica	I Specifications			
Item of comparison		GE Avance Predicate	Mindray A Predicate		Draeger Apollo Predicate	Oricare A9800 Current Submission	Substanti	al Equivalence
Target Population		Neonatal, pediatric, adult	Pediatric, A	dult	Neonatal, pediatric, adult	Adolescent to Adult	No Dif	ference - SE
Anatomical Sites		No patient contacting parts	No patier contacting p		No patient contacting parts	No patient contacting parts	No Diff	ference - SE
Where Used		Hospital Environment	Hospital Environme		Hospital Environment	Hospital Environment	No Diff	ference - SE
Power		AC Power/DC Backup	AC Power/ Backup	-	AC Power/DC Backup	AC Power/DC Backup	No Dif	ference - SE
Human Factors		Tested	Tested		Tested	Tested	No Dif	ference - SE
Electrical Safety		ISO 60601-1	ISO 60601	I-1	ISO 60601-1	ISO 60601-1	No Diff	ference - SE
Mechanical Safety		ISO 60601-1	ISO 60601	I-1	ISO 60601-1	ISO 60601-1	No Dif	ference - SE
Chemical safety		NA	NA		NA	NA	No Dif	ference - SE
Thermal Safety		NA	NA		NA	NA	No Diff	ference - SE
Radiation Safety		NA	NA		NA ·	NA	No Dif	ference - SE`
Height		53 inches	55 inche	s	59 inches	56 inches	Substanti	ally Equivalent
Width		28 inches	41 inche	s	33 inches	36 inches	Substanti	ially Equivalent
Depth		29 inches	31 inches	s	31 inches	30 inches	Substanti	ally Equivalent

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Item of comparison	GE Avance Predicate	Mindray A5 Predicate	Draeger Apollo Predicate	Oricare A9800 Current Submission	Substantial Equivalence
Weight	275 pounds	330 pounds	363 pounds	287 pounds	Substantially Equivalen
Operating Temp	50-100 °F	50-104 °F	59-104 °F	50-104 °F	Substantially Equivalen
Operating Humidity	Less than 95% RH	15-90% Non- condensating	25-85% Non- condensating	15-90% Non- condensating	Substantially Equivaler
Top Shelf Width	26 inches	24 inches	24 inches	25.5 inches	Substantially Equivalen
Top Shelf Depth	15.75 inches	14 inches	20 inches	15 inches	Substantially Equivalen
Top shelf Weight Limit	75 pounds	88 pounds	100	55 pounds	Substantially Equivaler
Work Surface Height	32 inches	33 inches	Not Specified	33 inches	Substantially Equivaler
Work Surface	409 in ²	364 in²	234 in²	319 in ²	Substantially Equivaler
Din Rail	Yes	Yes	Yes	Yes	Substantially Equivaler
Drawers	2	2	3	3	Substantially Equivaler
Drawer Height	6.9 inches	5.3 inches	Not Specified	5.1 inches	Substantially Equivaler
Drawer Width	13 inches	17.3 inches	Not Specified	19.4 inches	Substantially Equivaler
Drawer Depth	10.4 inches	15.1 inches	Not Specified	13.8 inches	Substantially Equivaler
Total Storage (all drawers)	1866 in ³	2769 in ³	Not Specified	4096 in ³	Substantially Equivaler
Casters	4	4	4	4	Substantially Equivaler
Brakės	Central Brake for Casters	Central Brake for Casters	Central Brake for Casters	Locking front casters	Substantially Equivale



Item of comparison	GE Avance Predicate	Mindray A5 Predicate	Draeger Apollo Predicate	Oricare A9800 Current Submission	Substantial Equivalence
Volume Control with tidal compensation	Yes	Yes	Yes	Yes	Substantially Equivalent
Pressure Control	Yes	Yes	Yes	Yes	Substantially Equivalen
Pressure Control with Volume Guaranteed (PCV-VG)	Yes	Yes	, NO	Yes	Substantially Equivalen
Synchronized Intermittent Mandatory Ventilation (SIMV-VCV, SIMV-PCV)	Yes	Yes	No	Yes	Substantially Equivalen
Synchronized Intermittent Mandatory Ventilation (SIMV-PCV-VG)	Yes	Yes	Not Offered	Not Offered	There is no patient safet risk by not offering this mode - SE
Pressure Support	Yes	Yes	Yes	Yes	Substantially Equivalen
Apnea Backup	Yes	No	Yes	Yes	Substantially Equivalen
Tidal Volume Range (V₁)	20 to 1500 mL	0 to 1500 mL	20 to 1400 mL	20 to 1500 mL	Substantially Equivalen
Incremental Settings (20-100 mL)	5 mL	1	Not Specified	5 mL	Substantially Equivalen
Incremental Settings (100-300)	10 mL	1	Not Specified	10 mL	Substantially Equivalen
Incremental Settings (300-1000)	25 mL	1	Not Specified	10 mL	Predicate and A9800 offer Vt adjustment and for this setting the A980 has better resolution -Si
Incremental Settings (1000-1500)	50 mL	1	Not Specified	50 mL	Substantially Equivalen
Minute Volume Measurement Range	2 - 20 L/min	0 to 30 L/min	0 – 99.9 L/min	0 to 30 L/min	Substantially Equivalent
Pressure (P _{inspired}) range	5 60 cm H₂O	5-70 cm H ₂ O	5-70 cm H₂O	5 – 70 cm H₂O	Both predicate and A9800 offer Inspired settings and the A9800 adjustment range Is slightly greater - SE



Item of comparison	GE Avance Predicate	Mindray A5 Predicate	Draeger Apollo Predicate	Oricare A9800 Current Submission	Substantial Equivalence
N ₂ O shut off with loss of O ₂ pressure?	Yes	Yes	Yes	Yes	Substantially Equivalent
O₂ flush range	>35 L/min	>35 L/min	>35 L/min	>35 L/min	Substantially Equivalent
Fresh gas flow range	0 mL/min 15 L/min	0 mL/min - 15 L/min	0 and 0.2 - 18 L/min	0 mL/min – 15 L/min	Substantially Equivalent
O ₂ flow accuracy	±5% or ±20 mL/min	± 10% or 120 mL /min	± 10% or 120 mL /min	± 10% or 120 mL /min	Substantially Equivalent
O ₂ concentration range	21 – 100%	21 – 100%	21 – 100%	21 – 100%	Substantially Equivalent
Hypoxic Guard	Yes	Yes	Yes	Yes	Substantially Equivalent
Circle Mode	Yes	Yes	Yes	Yes	Substantially Equivalent
ACGO Mode	Yes	Yes	Yes	Yes	Substantially Equivalent
CO ₂ Canister	Yes	Yes	Yes	Yes	Substantially Equivalent
Exhalation port	22 mm OD ISO 15 mm ID taper	Substantially Equivalent			



Item of comparison	GE Avance Predicate	Mindray A5 Predicate	Draeger Apollo Predicate	Oricare A9800 Current Submission	Substantial Equivalence
Inhalation port	22 mm OD ISO 15 mm ID taper	22 mm OD ISO 15 mm ID taper	22 mm OD ISO 15 mm ID taper	22 mm OD ISO 15 mm ID taper	Substantially Equivaler
Bag port	22 mm OD	22 mm OD	22 mm OD	22 mm OD	Substantially Equivaler
Bag-to-Ventilator switch	Bi-Stable	Bi-Stable	Bi-Stable	Bi-Stable	Substantially Equivale
3ag-to-Ventilator control	Controls ventilator and direction of breathing gas	Controls ventilator and direction of breathing gas	Controls ventilator and direction of breathing gas	Controls ventilator and direction of breathing gas	Substantially Equivale
APL valve range	0.8 to 70 cm H₂O	0.8 to 70 cm H₂O	0.8 to 70 cm H₂O	0.8 to 70 cm H₂O	Substantially Equivale
Compliance compensation mechanical modes	Auto compensate	Auto compensate	Auto compensate	Auto compensate	Substantially Equivale
Gas Supply Pressure Gages	Electronic	Pneumatic Mechanical	Pneumatic Mechanical	Pneumatic Mechanical	Substantially Equivalen
Gas Mixer	Electronic	Pneumatic Mechanical	Pneumatic Mechanical	Pneumatic Mechanical	Substantially Equivale
Auxiliary Oxygen	No Blender	No Blender	No Blender	Blender	The Oricare A98 Anesthesia Workstati includes an Auxilia O ₂ /Alr Blender while t predicate devices ha Auxiliary O ₂ only. TI A9800 Aux O ₂ // Blender when set 100% functio identically to t predicate device Auxiliary O2 Flow mete The A9800 has t additional capability an O2/Air Blender allow the user to low the Auxiliary O2 lev below 100%. prevent Surgical fir where a nasal cannu or other open system in use, low concentrations of O2 a preferred per FDA, AS and APSF initiative There is no patient ris The A9800 substantially equivale to the predicate device

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5.15 Predicate Device(s) Comparison Table – AGSS						
Item of comparison	GE Avance Predicate	Mindray A5 Predicate	Draeger Apollo Predicate	Oricare A9800 Current Submission	Substantial Equivalence	
AGSS Type – Active	Adjustable Flow	Adjustable Flow	Adjustable Flow	Adjustable Flow	Substantially Equivalent	
AGSS low flow indicator	Yes	Yes	Yes	Yes	Substantially Equivalent	
AGSS connector	DISS evac	DISS evac	DISS evac	DISS evac	Substantially Equivalent	

5.16 **Substantial Equivalence Summary**

Operational and technological characteristics form the basis for the determination of substantial equivalence of the A9800 Anesthesia workstation with the legally marketed predicate device(s) (K123125, K123211, and K042607). The A9800 is substantially equivalent to the predicate device(s).

Non-Clinical Tests - Harmonized Standards 5.17

The A9800 has passed all safety tests for demonstrated compliance with the harmonized standards below:

Standard	FDA Recognition #	Title	Testing Laboratory
IEC 60601-1	5-4	Medical equipment/medical electrical equipment - Part 1: General requirements for basic safety and essential performance	3 rd Party: TUV
IEC 60601-1-2	5-35	Medical Electrical Equipment - Part 1: General requirements for safety to collateral Standard: Electromagnetic Compatibility requirements and tests.	3 rd Party: National Testing and Inspection Center
IEC 60601-1-8	5-49	Medical Electrical Equipment – Part 1-8: General requirements for safety – collateral standard: Alarm Systems	3 rd Party: TUV
IEC 62366	5-50	Medical Devices – Application of usability engineering to medical devices.	3 rd Party: TUV
ISO 80601-2-13	Not Recognized	Medical Electrical Equipment Part 2-13: Particular Requirements for basic safety and essential performance of an anesthetic workstation.	3 rd Party: TUV
IEC 60601-1-6	Not Recognized	Medical Electrical Equipment Part 1-6: General requirements for safety – collateral standard: Usability including IEC 62366: Application of usability engineering to medical devices.	3 rd Party: TUV

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Waveform Analysis	A9800 to Avance waveform comparison report			
Simulated Use Validation	Simulated Use Validation testing of anesthesia machine			
Phasein	Phasein standard requirements report – EN60601-1 and 21647			
ISTA	ISTA shipping test report			
Gas Analyzer Test Report	A9800 Gas Analyzer report			
RD-GMAP-M3-004	BDU/PSU - Main control board hardware test unit			
RD-GMAP-M3-008	SBU – Sensor board hardware unit test			
RD-GMAP-M3-010	KBD – Keyboard hardware unit test report			
RD-GMAP-M3-014	EFM – E-flowmeter board hardware unit test report			
RD-GMAP-M3-020	Integration test and prototype machine verification report			
RD-GMAP-M3-042	Blender test report			
RD-GMAP-M3-043	Breathing system manual/auto switch life cycle test report			
RD-GMAP-M3-044	Breathing system test report to ISO8835-2			
RD-GMAP-M3-047	ACGO Switch life cycle test report			
RD-GMAP-M3-050	Hardware system Verification and Validation Report			
RD-GMAP-M3-057	Breathing system Hi temperature steaming test report			
RD-GMAP-M3-064	Breathing system heating test report			
RD-GMAP-M3-066	Battery charge & discharge test report			
RD-GMAP-FDA-020	AGSS Test to ISO 8835-3-2007			
NAMSA-N112221	Summary Report and Biological Safety Assessment			
NAMSA-V0014_130	Cytotoxicity			
NAMSA-T0625_500	ISO Systemic Toxicity Study in Mice			
NAMSA-T1251_800	ISO Intracutaneous Study in Rabbits			
	ISO Guinea Pig Maximization Sensitization Test			
NAMSA-T1261_300	-			
NAMSA-T1261_300 LSO Autoclave-SVS-ORC-01	Steam Sterilization Cycle Validation			



5.19 Summary of Non-Clinical Tests as required by 807.92 (b)(1)(3)

The A9800 Anesthesia Workstation has been thoroughly tested. FDA recognized standards, FDA quidance documents, harmonized standards, verification and validation, software validation, usability validation, and risk management activities have taken place for the A9800 Anesthesia Workstation.

The A9800 Anesthesia Workstation will be manufactured in compliance with FDA and ISO quality system requirements. System validation and verification will demonstrate that the functional requirements and system specifications have been met prior to commercial release.

Based upon the design, intended use, indications for use, classification, usability and safety testing the A9800 Anesthesia Workstation is substantially equivalent to the listed predicate device(s) (K123125, K123211, and K042607).

No new issues of safety or effectiveness are introduced as a result of using this device.

5.20 Summary of Clinical Tests as required by 807.92 (b) (1) (2)

The A9800 Anesthesia Workstation, like the predicate device, did not require clinical trials. FDA recognized standards. FDA guidance documents, harmonized standards, verification and validation, software validation, usability validation, and risk management activities have taken place for the A9800 Anesthesia Workstation.

Based upon the design, intended use, indications for use, classification, usability and safety testing the A9800 Anesthesia Workstation is substantially equivalent to the listed predicate device(s) (K123125, K123211, and K042607).

No new issues of safety or effectiveness are introduced as a result of using this device.

5.21 Conclusion

Oricare considers the A9800 Anesthesia Workstation to be substantially equivalent to the predicate device(s) (K123125, K123211, and K042607).

Oricare, Inc.

FDA Device Registration Number 3009129579 - K131790



Food and Drug Administration 10903 New Hampshire Avenue Document Control Center – WO66-G609 Silver Spring, MD 20993-0002

May 9, 2014

Oricare Incorporated
Mr. Kurtis Montegna
Quality Assurance & Regulatory Affairs Manager
1900 AM Drive
Quakerstown, PA 18951

Re: K131790

Trade/Device Name: A9800 Anesthesia Workstation

Regulation Number: 21 CFR 868.5160

Regulation Name: Gas machine for anesthesia or analgesia

Regulatory Class: Class II Product Code: BSZ Dated: April 04, 2014

Received: April 10, 2014

Dear Mr. Montegna:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the <u>Federal Register</u>.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please contact the Division of Industry and Consumer Education at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address

http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to

http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Industry and Consumer Education at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address

http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours.



Erin I. Keith, M.S.
Acting Director
Division of Anesthesiology, General Hospital,
Respiratory, Infection Control and
Dental Devices
Office of Device Evaluation
Center for Devices and
Radiological Health

Enclosure

Indications for Use

K131790

Device Name: A9800 Anesthesia Workstation

Indications for Use:

The A9800 Anesthesia Workstation provides general inhalation anesthesia and ventilatory support for adolescents to adults in an operating room environment. The device is indicated for volume or pressure control ventilation.

Prescription use X (Part 21 CFR 801 Subpart D) AND/OR

Over-The-Counter Use____(Part 21 CFR 801 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

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